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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/758,952	01/16/2004	Bruce R. Ferguson	MSEMI.084A	6180

20995 7590 01/30/2008

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EXAMINER	
PIGGUSH, AARON C	

ART UNIT	PAPER NUMBER
2838	

NOTIFICATION DATE	DELIVERY MODE
01/30/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/758,952	FERGUSON, BRUCE R.	
	Examiner	Art Unit	
	Aaron Piggush	2838	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 September 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *23-26,29 and 31-45* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *23-26,29 and 31-45* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 23-25 and 29 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 9-14 of copending Application No. 10/760126 in view of Oglesbee (US 6,246,214).

Claims 9, 10, and 13 of application 10/760126 disclose all of the limitations of claims 23 and 24 of the instant application, except wherein application 10/760126 does not specify that the "transistor" is a bi-directional transistor.

Oglesbee discloses wherein a bi-directional transistor is used for charging/discharging a battery, as further noted below in the 35 U.S.C. 103 rejections, in order to allow the charging current to be controlled in either direction.

Furthermore, the step of "sensing" the supply current as mentioned in claim 24 of the instant application is reasonably met by claim 9 of application 10/760126 because, in order for the charging current to be linearly adjusted to prevent a supply current from exceeding a predefined threshold, it must be sensed by some circuitry. However, Oglesbee also discloses sensing circuitry (abstract and no. 205 and 204 in Fig. 2 and 5). Please note that number 234 in Oglesbee's Fig. 2 should be labeled 204, according to his specification.

Additionally, it was well known to one of ordinary skill in the art at the time of the invention that a bi-directional transistor could be easily formed by using two separate, standard transistors (e.g. MOSFETs, BJTs, diodes).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include a bi-directional transistor as the transistor in application 10/760126, as did Oglesbee, so that the current could be more effectively and efficiently controlled in either direction for charging/discharging a battery.

Additionally, claims 11 and 14 of application 10/760126 disclose all of the limitations of claims 25 and 29 of the instant application, respectively.

This is a provisional obviousness-type double patenting rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 23-26, 29, 31, 34-37, 40, 41, and 43-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oglesbee (US 6,246,214) in view of Krall (US 5,621,299).

With respect to claims 23, 24, 31, 35, 41, and 44, Oglesbee discloses a method for controlling battery power comprising the acts of: selectively providing a first external power source to a device coupled to a system power terminal (abstract, no. 400 in Fig. 5, and col 3 ln 1-15); coupling an internal battery to the system power terminal via series-connected bi-directional transistor (battery no. 201 in Fig. 2, bi-directional transistor no. 203 in Fig. 2, and abstract); sensing a voltage difference between the system power terminal and a positive terminal of the internal battery (col 2 ln 58-62 and col 4 ln 3-34); generating a feedback control signal based on the voltage difference and a voltage level at a control terminal of the bi-directional transistor and translating the feedback control signal into a linearly adjustable voltage for driving the bi-directional transistor (col 4 ln 3-49, col 6 ln 43-63, and Fig. 3); determining a charging mode of operation when the voltage difference indicates that the system power terminal has a higher voltage than the positive terminal of the internal battery by a first predefined amount (col 4 ln 35-49 and abstract, wherein current flows from the source of the higher potential to the source of the lower potential, as is well-known to one of ordinary skill in the art); charging the internal battery by linearly regulating the bi-directional transistor with the linearly adjustable voltage at the control terminal of the bi-directional transistor to conduct a charging current in a first direction from the system power terminal to the positive terminal of the internal battery during the charging mode (no. 205 in Fig. 2 and col 4 ln 35-49); determining a discharging mode of operation when the voltage difference indicates that the system power terminal has a lower voltage than the positive terminal of the internal battery by a second predefined amount (col 4 ln

3-34 and abstract, wherein current flows from the source of the higher potential to the source of the lower potential, as is well-known to one of ordinary skill in the art); discharging the internal battery by linearly regulating the bi-directional transistor with the linearly adjustable voltage at the control terminal of the bi-directional transistor to conduct a discharging current in a second direction from the positive terminal of the internal battery to the system power terminal during the discharging mode (no. 204 in Fig. 2 and col 4 ln 3-34), wherein the level of current provided to the internal battery during the charging mode or current supplied by the internal battery during the discharging mode varies with the level of the linearly adjustable voltage at the control terminal of the bi-directional transistor; sensing a supply current from the external power source (col 4 ln 3-49 and col 6 ln 43-63); comparing the sensed supply current, generating a signal, and linearly adjusting the current to prevent it from exceeding a predefined threshold (col 4 ln 3-49).

However, Oglesbee does not expressly disclose selectively providing a first or a second external power source to a device (i.e. wherein this is interpreted to mean that there are two separate external power sources which can be switched between). As noted above, Oglesbee does disclose adjusting both the charging current and the discharging current, but his threshold control appears to be focused on the discharging current (it is obvious that this threshold control could also be applied to the charge control in the same manner). Additionally, "sensing a voltage difference" is met by Oglesbee during his description of deltaV (col 2 ln 58-62), and even if that description did not meet the phrase "sensing a voltage difference", the current sensing system (col 4 ln 3-34) meets that language because in order for current to flow, there must be a voltage difference between two points.

Krall discloses selectively providing a first or a second external power source to a device (no. 27 and 29 in Fig. 1, including switches no. 14 and 16), sensing a supply current from the second external power source (no. 47 in Fig. 1, all components of Fig. 5, and col 6 ln 33-67), and adjusting the charging current to prevent a supply current from exceeding a predefined threshold (no. 47 in Fig. 1, all components of Fig. 5, and col 6 ln 33-67), in order to prevent damage to the wiring or the batteries resulting from too great of a current or the heat generated therefrom.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to provide a selectable first or second external power source and adjust the charging current to keep it from exceeding a predefined threshold in the device of Oglesbee, as did the device of Krall, so that the batteries and wiring would not be damaged from too great of a current.

With respect to claim 25, Oglesbee discloses wherein the impedance of the bi-directional transistor varies to limit the level of the charging current or the discharging current (col 3 ln 36-46 and col 4 ln 3-49). Furthermore, when the transistor is off, its impedance is so high that current cannot flow through, and when the gate is supplied with certain voltages, the impedance is lowered so that a current may flow.

With respect to claim 26, Oglesbee discloses wherein the impedance of the bi-directional transistor varies inversely with the discharging current level during the discharging mode (col 3 ln 36-46 and col 4 ln 3-34).

With respect to claim 29, Oglesbee discloses wherein the discharging mode occurs in response to a discharge command (no. 204 in Fig. 2, wherein 234 is a typographical error in the reference which should be labeled 204 according to the specification, and col 6 ln 43-63).

With respect to claim 34, Oglesbee does not expressly disclose automatically disconnecting an external secondary power source when the external primary power source is connected.

Krall discloses automatically disconnecting an external secondary power source when the external primary power source is connected (col 3 ln 59-67 and no. 14 and 16 in Fig. 1), in order to avoid any external or internal circuit complications (i.e. damage to the power source or the device itself) from having two different power sources connected at the same time.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to disconnect the secondary power source when the primary source was connected in the device of Oglesbee, as did Krall, so that damage to the power source or the device itself could be avoided (from having two different power sources connected at the same time).

With respect to claims 36, 37, 43, and 45, Oglesbee discloses wherein the bi-directional transistor is a MOSFET (or field effect transistor) with a gate terminal and configurable body contact, the configurable body contact is coupled to the system power terminal during the charging mode and the configurable body contact is coupled to the internal battery during the discharging mode (no. 203 in Fig. 2, abstract, col 1 ln 10-14, and col 3 ln 8-15), and wherein a switching diode is coupled across the bi-directional transistor (no. 202 in Fig. 2). Furthermore, it would have been beneficial to use a P-channel MOSFET due to circuit simplification in medium and low power applications (versus an N-channel MOSFET). Please also note couple is defined as joining together, and by that definition, the claim language is still reasonably met by Oglesbee.

With respect to claim 40, Oglesbee discloses wherein the bi-directional transistor fully disconnects the internal battery from the system power terminal during a disable mode (col 3 ln 36-46 and col 4 ln 21-49).

5. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Oglesbee (US 6,246,214) and Krall (US 5,621,299), as applied to claim 31 above, and further in view of Faberman (US 5,978,236).

With respect to claim 32, Oglesbee does not expressly disclose wherein the bi-directional transistor disconnects the internal battery from the system power terminal during a sleep mode.

Faberman discloses wherein a bi-directional transistor disconnects the internal battery from a system power terminal during a sleep mode (charge switch S1F in Fig. 5, S6H in Fig. 6, and col 12 ln 7-23). In this case, the sleep mode is implied during instances wherein there is a low power draw in the computer, the battery is highly charged (or doesn't require any charging), and wherein the main source of power (AC Power In in Fig. 5 or E1H in Fig. 6) is not faulty. That is, the switch will be off, effectively disconnecting the battery from the system power terminal, in order to prevent the battery from unnecessary drainage/use which would shorten the overall lifespan of the battery (due to repeated charge/discharge cycles).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include a sleep mode disconnect in the device of Oglesbee, as did Faberman, so that the battery's lifespan could be extended by avoiding unnecessary drainage/use and lowering the number of charge/discharge cycles.

6. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Oglesbee (US 6,246,214) and Krall (US 5,621,299), as applied to claim 31 above, and further in view of Henrie (US 6,170,062).

With respect to claim 33, Oglesbee does not expressly disclose wherein the external primary power source is an AC adapter or wherein another external power source is a USB power interface.

Krall discloses wherein the external primary power source is an AC adapter (no. 63 in Fig. 1 and col 4 ln 59-65), in order to provide additional sources of power for the system which are readily accessible at numerous locations where the device might be used.

Henrie discloses a dual power supply on a USB system wherein a secondary external power source is a USB power interface (abstract, Fig. 9b, and col 2 ln 48-67), in order to provide a dual means of communication and power supply for various computer components.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include an AC adapter in the device of Oglesbee, as did Krall, and a USB power interface as the secondary external power source in the device of Oglesbee, as did Henrie, so that greater compatibility would be provided with various power sources available at different locations in which the device may be used, along with providing a port that could also be used to communicate with another device.

7. Claims 38 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oglesbee (US 6,246,214) and Krall (US 5,621,299), as applied to claims 31 and 37 above, and further in view of Fugate (US 2002/0021164).

With respect to claims 38 and 39, Oglesbee does not expressly disclose wherein the method further comprises a comparator with input coupled across the bi-directional transistor to sense a voltage polarity of the bi-directional transistor and an output to control connections for the configurable body contact, or wherein the configurable body contact connects to a channel terminal with a relatively higher voltage during a shutdown mode.

Although, Oglesbee does have a comparator with inputs technically coupled across the bi-directional transistor (see no. 310 in Fig. 4).

Fugate discloses a bi-directional transistor with a configurable body contact (no. 22 in Fig. 2) and a comparator with inputs coupled across the transistor (see Fig. 2 at Vdd and Vo), wherein the output controls connections for the configurable body contact (no. 32 in Fig. 2), wherein the configurable body contact connects to a channel terminal with a relatively higher voltage during a shutdown mode (para 0002, 0003, 0007, 0008, and 0009), in order to provide a safer power down with slow and fast falling power supplies.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include a transistor with a body configurable contact and a comparator coupled across the inputs of the transistor to control the connection as mentioned above in the device of Oglesbee, as did Fugate, so that a safer connection could be provided depending on whether or not the battery was being charged or discharged.

8. Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Oglesbee (US 6,246,214) and Krall (US 5,621,299), as applied to claims 23 and 41 above, and further in view of Aiken (US 5,786,682).

With respect to claim 42, Oglesbee does not expressly disclose wherein the threshold/reference current level is selectable from at least two different values.

Aiken discloses wherein a battery charger circuit uses the selection of different reference currents (col 5 ln 35-43, abstract, and no. 64 in Fig. 3A), in order to allow the charging of different sized batteries.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to include a selectable reference current in the device of Oglesbee, as did Aiken, so that the user would have greater control of the conditions to which he/she wanted the battery charged (and to expand the use of the circuit with various sized batteries).

Response to Arguments

9. Applicant's arguments filed September 17, 2007 have been fully considered but they are not persuasive or are moot in view of the new grounds of rejection (necessitated by amendment).

With respect to claim 23, applicant argues that none of the cited references disclose a configuration that generates a feedback control signal (used for driving the transistor) based on a voltage level at a control terminal of a bi-directional transistor and a voltage difference between a system power terminal and a positive terminal of an internal battery.

Examiner respectfully disagrees for the following reasons: Please see the rejection of claim 23 above, including the added citations necessitated by amendment. Furthermore, Oglesbee does use feedback control that is based on the voltage difference between the system power terminal and the battery terminal. This is met during his description of deltaV (col 2 ln 58-62), and even if that description did not meet the phrase "sensing a voltage difference", the current sensing system (col 4 ln 3-34) meets that language because in order for current to flow,

there must be a voltage difference between two points. Additionally, Oglesbee is clearly controlling the transistor relative to the immediate values of the voltage of the battery versus the voltage of the power terminal by use of his charge and discharge control circuits (connected to the transistor).

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aaron Piggush whose telephone number is 571-272-5978. The examiner can normally be reached on Monday-Friday 9:30am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Akm Ullah can be reached on 571-272-2361. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AP

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